

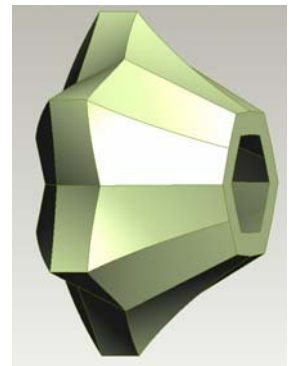
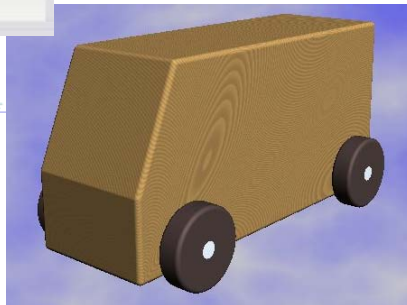
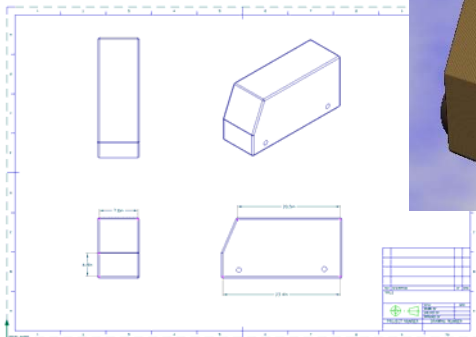
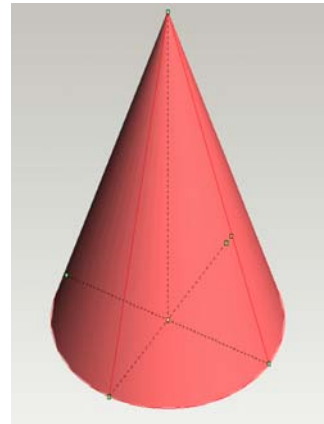
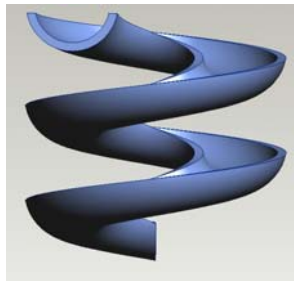
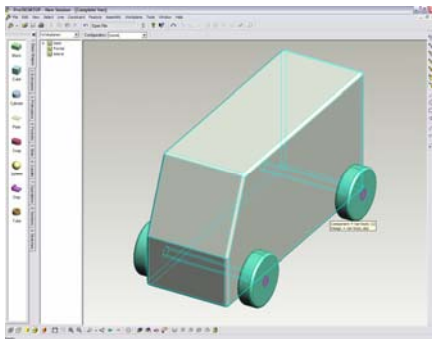
# 3-D Solid Modeling and Design

Student Learning Activities  
for

PTC

Pro/DESKTOP® 8.0

*Activity #5*



# Activity 5:

## Picture Perfect

(Flesch-Kincaid readability level = 7.1)

### About the program

Pro/Desktop (called 'PD' from now on) is a powerful software program that allows you to sketch ideas first, and then work on design details later.

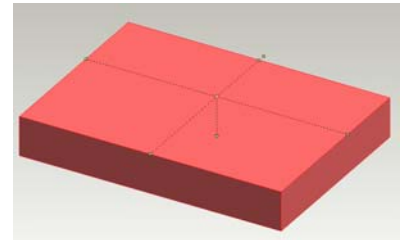
This activity will help you:

- Memorize additional icons and their functions that you use to move and shape designs
- Create multiple designs with different aspects

### Your 'Initial' assignment

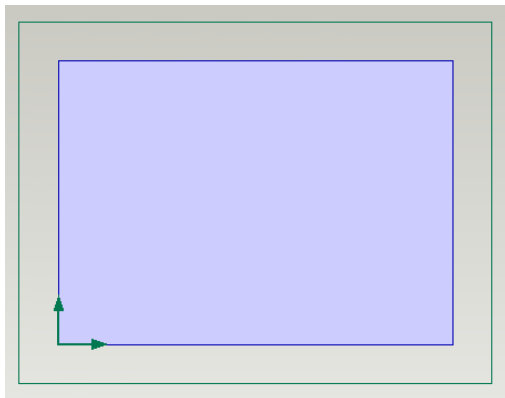
From a new sketch, design a rectangle with the following elements:

- Point of origin is at the lower-left hand corner of the rectangle
- x axis = 10"
- y axis = 7.2"
- z axis = Add material that is extruded to 1.5" BELOW the workplane



**SAVE** your design at this to your instructor's directions.

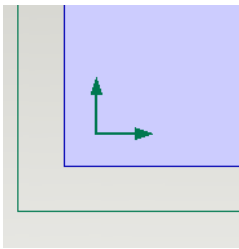
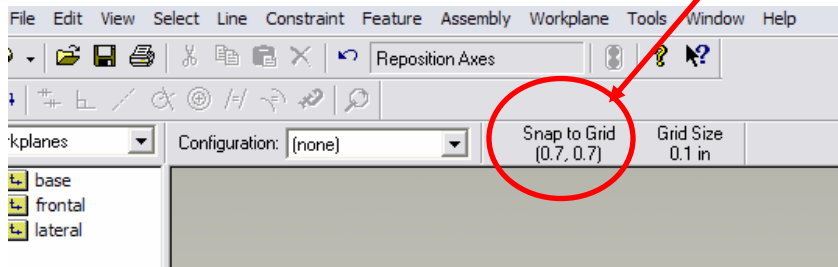
Using the Select Faces icon, click the top surface only of the new design so that it shows active (**red**). We will engrave your initials on this design. To do so, click on the 'Workplane' pull down menu and selecting 'New



Sketch'. Because you have the face selected, PD will create a new sketch and place it right on top of the existing one. Change the name of the sketch to 'Me!'. Click OK.

Now, you need to reposition the Point of Origin axes. To do this, change to

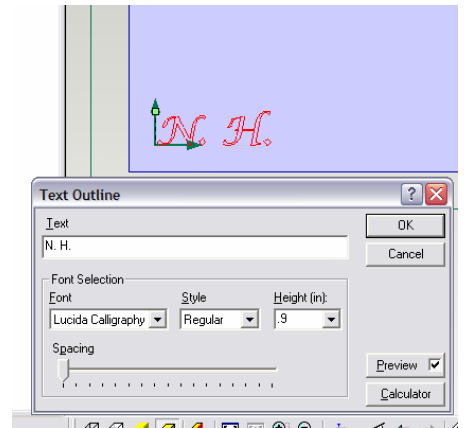
the Workplane view and click on any drawing tool (straight line, arc, etc.) icon in the Design Toolbar. Now click on the Workplane pull-down menu in the Top Toolbar. Click on 'Reposition Axes'. Move your cursor just above and to the right of the Point of Origin. When the **Snap to Grid** coordinates read (0.7, 0.7), click and the new Point of Origin will be established.



This will be the origin for keying in your initials.

**SAVE** your design to your instructor's directions.

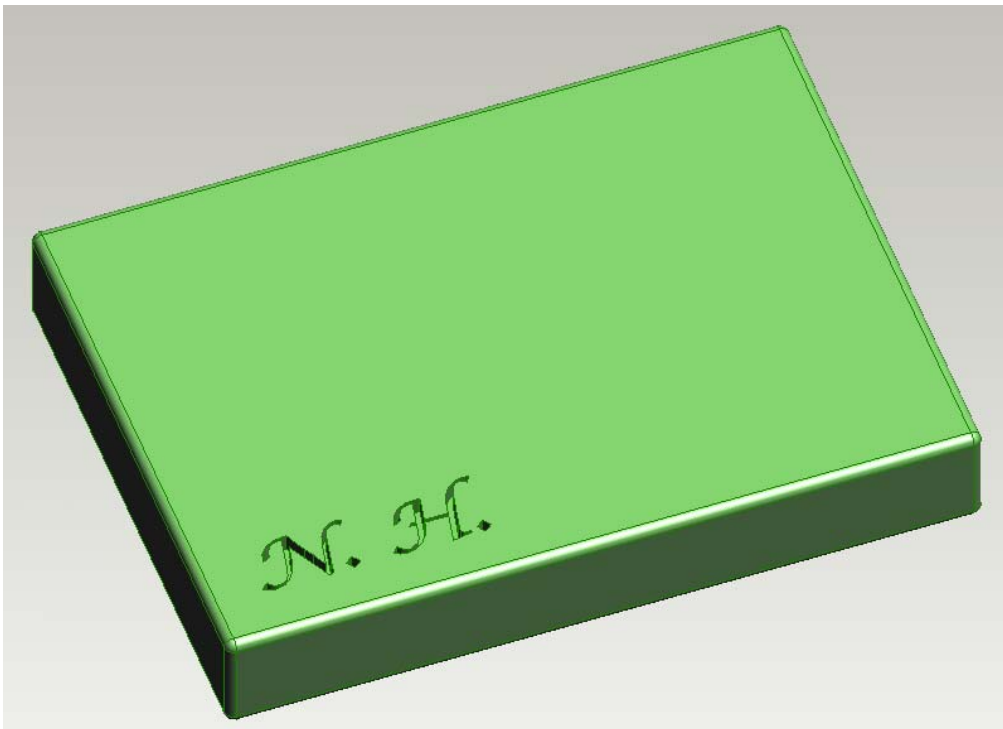
Click on the **Line** pull-down menu and then click on 'Add Text Outline'. A small dialogue box appears. Make sure the 'Preview' box is checked. Choose your font (Lucida Calligraphy is shown here) and set the 'Height' at .9. Leave the font Style as 'regular'. Enter your initials with periods in the 'Text' field. You will see an outline of your initials form at the point of origin.



Click OK. While your initials are still 'active' (**red**), you will extrude them by subtracting material. If you accidentally clicked anywhere else and the initials turned inactive (not red), simply click once inside the 'Me!' sketch workplane, then hold the Control Key (Ctrl) and press the letter 'A' once. This 'selects all' segments of your initials and makes them ready to extrude. Click Extrude and in the Extrude Profile dialogue box, click on 'Subtract material' a 'Distance' of .25 inches 'Below the workplane'. Then, click OK. Click once more anywhere in the Design

field and rotate/zoom your new design to better see the initials ‘carved’ into the initial rectangle.

Radius all **outside** edges of the rectangle to .125 inches. **HINT: Don’t use the ‘Select Features’ icon to radius all edges in the entire drawing, or PD will try to radius the small edges of your initials and an error will occur.** Because you have ‘carved’ initials in the design, it will want to radius those edges if you use the ‘Select features’ icon to do all edges at once. Instead, use the ‘Select Faces’ or ‘Select Edges icons’ to round all outside edges of your rectangle and leave the initials as they are. Another ‘trick’ is to hold down the ‘Shift’ key while clicking each face and they will become active for editing, one by one. If you make a mistake, remember to promptly use the ‘Undo’ command.



Rotate your design around for a better look.

**SAVE your design as Camera Body** and according to your instructor’s directions. Close this design.

In a new sketch, create a new design with the following elements:

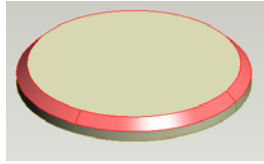
- Point of Origin at the center of the circle

- WW-A 3.2” Ø circle

- Extruded .2” of Added material ABOVE the workplane

-Edges chamfered on the **TOP face only** to an Equal Setback of .1 inch.

It should look close to this:



Make a second, **concentric** circle inside the first. Concentric means that the two circles share the same center point.

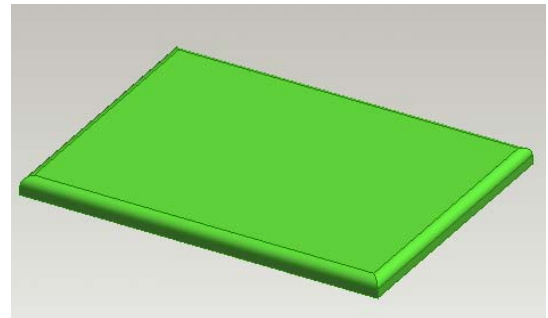
To do this, switch to the Workplane view. Move the cursor to the Point of Origin. When a handle appears in the center of the first circle, click and drag the new circle to a 2.5" Ø. Click the Update icon. The new design should end up looking something like this→.



**SAVE your design as Lens Ring** and according to your instructor's directions. Close this design.

Lastly, create a new sketch of a small rectangle with the following elements:

- Point of Origin in the lower left corner
- A dimension of (2, 1.5)
- Extruded to add material .1" above workplane
- Top Edges **ONLY** to have a radius of .05"



**SAVE your design as Flash** and according to your instructor's directions. Close this design.

**You have completed this activity using PD! Please exit the program.**